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Background: Clinical and subclinical depression (dysphoria) is associated with impaired facial emotion recognition. Despite the utility of ERPs in understanding face processing, to date there have been relatively few studies using this method to examine processing of faces in depressed participants.

Aim: To use ERPs to investigate physiological changes associated with the processing of emotional faces in dysphoria.

Methods: 16 dysphoric and 17 non-dysphoric participants were presented with a series of photographic images of faces featuring one of three emotional expressions (happiness, sadness or neutral affect) and were asked to identify the emotion portrayed by each face. During the face processing task continuous EEG data were recorded using a 128 channel Geodesic system.

Results: Dysphoric participants correctly labelled fewer neutral expressions than did the non-dysphoric group. Partial Least Squares analysis of the EEG data revealed a significant latent variable that distinguished sad faces from neutral. This variable also distinguished the two groups, with the most significant effects being evident in the right posterior parietal electrode sites. Inspection of the ERPs at the site of greatest activation revealed greater positivity for sad faces in the dysphoric participants emerging around 300 milliseconds after stimulus onset. The difference in the scores on the latent variable for sad and neutral faces was significantly related to depression severity and the difference in response times for sad and neutral faces.

Conclusions: dysphoria is associated with a change in right posterior-parietal activity in response to sad faces, which seems to be more evident in those with more severe depression.